

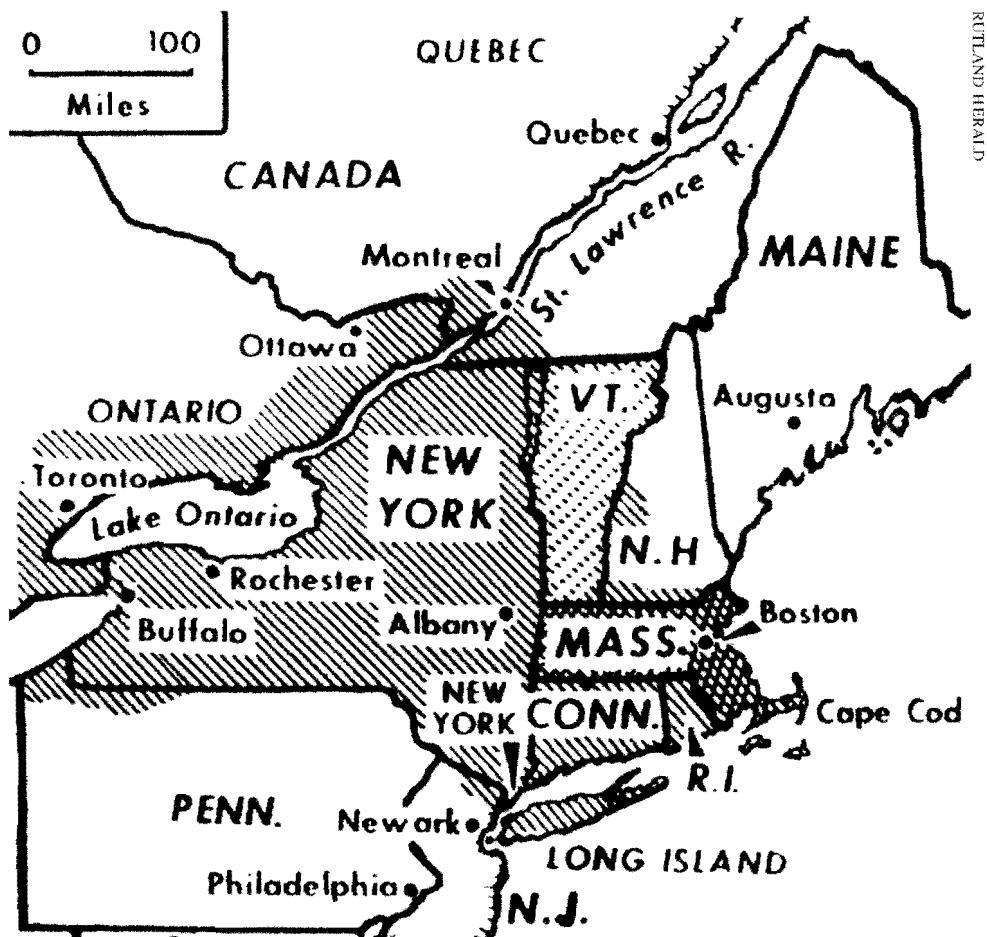
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Rutland City in the Dark: Northeast Blackout of November 9th 1965



Map of the electrical outage in New York & New England in 1965.

About the Author



CLIFFORD GIFFIN

Clifford Giffin began his career in the electrical utility industry in 1946 when he was employed by the Public Electric Light Company (PELCO) which was a small electric utility serving the St. Albans, Vermont, area. He transferred to the Central Vermont Public Service Corporation (CVPS) when PELCO was purchased by CVPS in the summer of 1953. At the time of this story he was the Chief Dispatcher for CVPS at its central dispatch center located in Rutland at 77 Grove Street.

During his career at CVPS he managed several functions and was its Vice President of Operations when he retired in 1990, after forty four years in the electric utility industry. He and his wife Shirley reside in Rutland City. Clifford is an active member of the Rutland Historical Society where he brings energy, enthusiasm and experience to his volunteer work for the Society. Currently he also serves on the Society's Board of Directors.

Introduction

The availability of electricity has been a fact of life for nearly a century. Only an occasional severe storm or a brief interruption to repair or replace equipment has been reason to lose electrical service or so it was thought. But on 9 November 1965 there was no storm, no equipment breakdown, but suddenly no electricity. It was as if a giant galactic magnet had sucked away all the electricity in much of New York and New England and for some time no one knew why.

This is a story of the great blackout of November 1965 and the resolution of the local problem as it was seen through the eyes of one of the principals charged with restoring electricity to Rutland.

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Rutland City in the Dark

Northeast Blackout

November 9th 1965

By Clifford Giffin

The year was 1965. Johnson was president and the Vietnam War was raging. Here in New England there was great excitement in the electric industry with the promise of nuclear electric power. One exuberant expert publicly stated that electricity would be so cheap it would not be metered. Electric heat was being promoted as efficient, easy to install and inexpensive to operate.

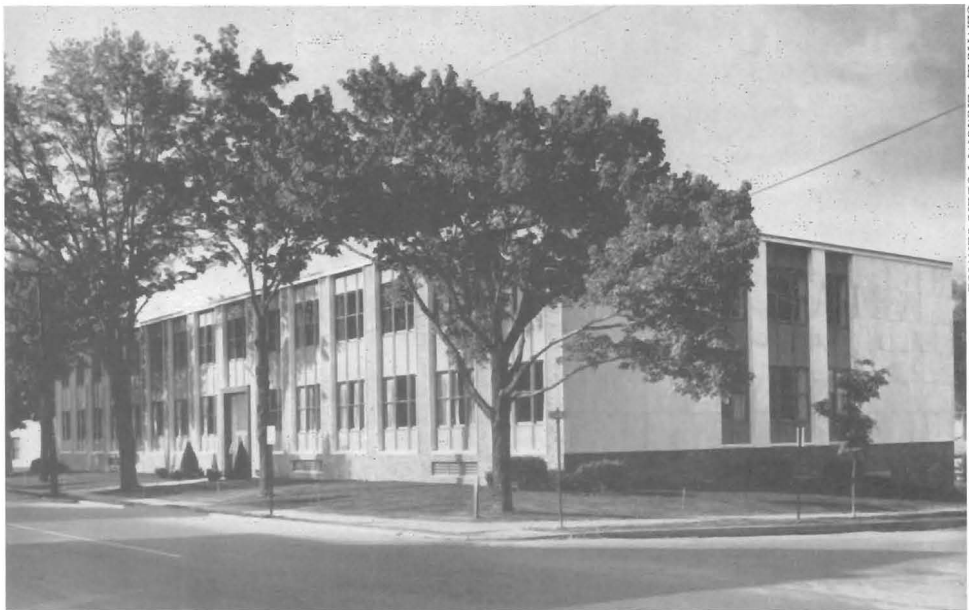
By 1965 the electric industry in Vermont, consisting of over twenty-five utilities, had been integrated electrically into a statewide interconnected transmission system. The transmission system was owned and operated by the Vermont Electric Power Company (VELCO). Its three major stockholders were Central Vermont Public Service, Green Mountain Power Corporation, and Citizens Utilities Company.

In spite of Vermont's success in forming a statewide grid for bulk electric power supply, New England, as an area, was still controlled by individual electric utilities. Vermont's electric system frequency control and other operating requirements for control were provided by New England Electric System (NEES) which had its control center for operations located in Millbury, Massachusetts.

At this time centralized operations and planning for the New England Area was only a vision. It had been recognized that centralized control for New England was a necessity, but competing interests of electric company executives made it difficult to bring centralized control and planning for New England into a functioning entity.

In January 1965 I had been placed in charge of the Dispatch Department function at Central Vermont Public Service Corporation (CVPS) located down stairs at the corporate office headquarters at 77 Grove St. Operations had moved to this location from Cleveland Avenue around 1960. This function controlled the company's generating and transmission facilities and administered purchased

power contracts and other customer service related activities necessary to operate the electric power system.



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Central Vermont Public Service headquarters, 77 Grove Street.



CLIFFORD GIFFIN

Clifford Giffin at CVPS on a typical workday.

Tuesday, November 9, 1965, ended as just another workday. The weather was clear and seasonably cool and without storms in the

forecast. Leaving the office a little after 5:00 pm I drove to my home on North Church St, a short drive from the office. As I came into the house my wife looked at me with a puzzled look. "I'm surprised to see you," she said.

"Why?" I asked.

"The lights have been blinking so I knew you must be having problems," she replied.

I had been in the utility business for nineteen years and my family knew that when the lights blinked Daddy was having problems. Even when I was at home and outside I would be told if the house lights blinked.

As I stood in the doorway I did notice that the house lights seemed quite dim. At first I thought it was because I was coming in from the darkness then as I stood there I realized that that wasn't the reason as they were getting dimmer.

"I'll have to get back down there," I said, rushing out to the car without having taken my coat off.

Turning onto Grove Street from Crescent Street the streetlights and traffic lights went out. As I continued along the street all the houses were dark.

It was a really strange feeling without streetlights, traffic lights or house lights. The moonlight lit up the roofs and streets with its pale soft light. As I parked in the company parking lot, I noticed that the emergency generator was running to supply power to the building. It was a good feeling to know that our weekly exercise of the emergency motor generator set was paying off.

My mind quickly played out different scenarios that could be the problem causing the north end of the city to be without electricity. Could it be a car pole accident or maybe a problem at the North Rutland Substation? My mind toyed with the options. I knew the North end of the city was served from that substation.

My experience told me the problem would be quickly discovered and steps taken to restore service from either an alternate supply or by promptly repairing the problem and that would be that.

As I rushed down the ground level corridor into the dispatch center I found the dispatcher on duty, Howard Garrow, was busy talking on the red emergency phone. This private line did not go through the company switchboard and its purpose was for emergency communications only. The company switchboard was lit up with its twenty or more incoming lines, white lights flashing and each one ringing, waiting to be answered. The time was 5:28 pm.

"What's going on?" I inquired.



Howard Garrow at the emergency phone.

Taking the phone off his ear for a second Howard looked up and said, "I don't know. I'm trying to find out. I'm getting calls from everywhere. I've called the on call man but...." and then he turned back to the red phone.

As I was standing there trying to figure out how I could help, the private phone from North Rutland substation flashed and rang. Picking up the phone, I replied, "Yes."

"This is Bush and I am up at North Rutland substation and the substation is flat. The switches are all open and all incoming transmission lines are dead. I'll be here waiting to help with what I can." (Gilbert "Bush" Howland was a company electrical and substation engineer.)

"Thanks Bush," I said and hung up the phone.

Going into my office, adjacent to the dispatch office, I was able to contact the Vermont Electric Power Company (VELCO) dispatch center on Wales Street and discovered that they were also scrambling to find the source of the problem. They said their transmission system was without power and that they could not contact the New England Electric System dispatcher in Millbury, Massachusetts. Knowing that VELCO was without electric service I knew it was more than a local outage involving the northern part of the city.

Then the North Rutland Substation phone rang again. "Yeah," I replied.



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Ready Room (adjacent to Dispatch Center). "Bush" Howland (standing at right rear in dark suit) was at the North Rutland Substation at this time.

"Giff this is me again. A guy just stopped out here with a CB radio in his car and he says all of New England is out of power. Even planes can't land in New York because the airport lights are off."

"I thought this was local," I remarked.

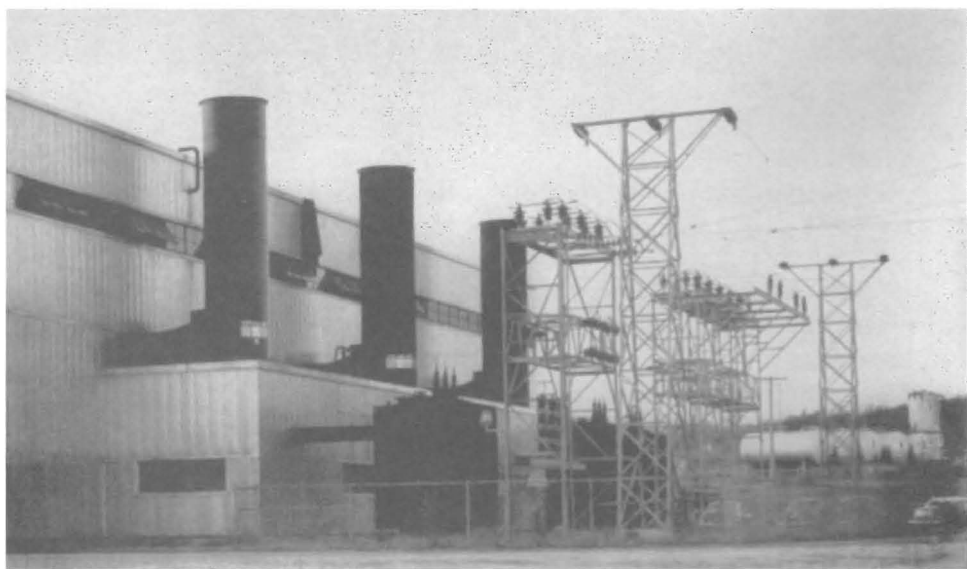
"You better think again. I'll let you know if I hear anything else. I'll be here," he said as he hung up the phone.

By now the corridors on the ground floor at the 77 Grove Street office building were crowded with employees trying to find out what was going on and volunteering to help.

The company FM two-way radio speaker was crackling with linemen and supervisors calling in to find out what was going on and to tell the dispatcher where they were located. They knew that switching likely would be needed to restore service. A beep was sounding every minute or so from the radio speaker alerting the dispatcher that the emergency generator was providing electricity to the transmitter site at the top of Pico Mountain. The Company had installed emergency generators at its mountain top radio sites so that FM radios would function during power failures. Electricity to the mountaintop was off quite frequently because to get to the mountaintop the electric lines were situated on pretty rough terrain.

Now that I knew that electricity would not be available from outside the state, we would have to attempt to restore service to Rutland City with local generation, if we could. I knew the electric requirements for the Rutland City area load was about twenty thousand kilowatts and that we would need to start the gas turbines located just off West Street if we were going to be successful in supplying the city. In my mind I thought we could at least get electricity back to the hospital, police, and fire department. Of course, at the time, I had no idea how long it would be before the bulk power supply would be available.

The problem was that the gas turbines that would be needed to supply the electricity had to be cranked by electric motors to start them rolling and there was no electricity available at the gas turbine plant off West Street, or anywhere else.



CENTRAL VERMONT PUBLIC SERVICE

The three gas turbines just south of West Street.

The sources available to supply electricity to the gas turbines were the hydro stations on East Creek. It would be necessary to find some way to get electricity from them to the gas turbine plant.

The hydro station operators were unfamiliar with the procedure to start their hydro generator units without electric service. They were in the dark at the stations except for DC lights from station batteries and handheld lights.

The hydro units available in the Rutland Area were Glen Station on Route 7, with a capacity of 1,500 KW, East Pittsford Station with a

capacity of 3,000 KW and then the three gas turbines that had a total capacity of 15,000 KW. I knew if we could get them all on line we would be able to supply most of the city.

I had been a station operator for Public Electric Light Company in St. Albans until 1953. While I was working there the company would lose electricity completely once in a while, as the company was not connected to any source other than its own generation. With this experience I knew the fundamentals of restoring a power system from a complete shut down. Howard Garrow, the dispatcher on duty, also came from the same company so he also had experience.

As one would imagine there was much frustration and confusion. It was impossible to get through to other utilities that would have the much-needed information. The ringing on many telephone switchboards didn't work without electricity. No one of course had thought electricity could be completely off. Duplicate electric lines that had been installed as back up, didn't work as the supply had failed. Many places did not have emergency lights. Outside lights at substations were off so switchmen had to depend on flashlights to operate switches.

Our first step was to try to energize the transmission line into the gas turbine plant from Glen Station. But the operation failed.



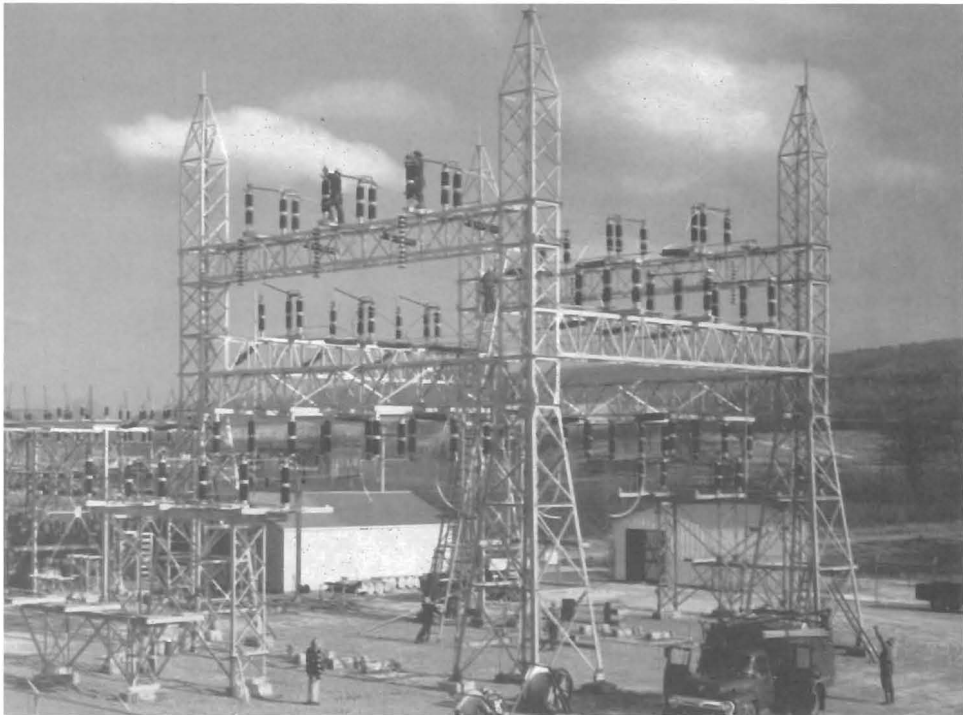
CENTRAL VERMONT PUBLIC SERVICE

The Glen Station on Route 7 just north of Rutland.

When that didn't work, we opened the transmission line on the north side of East Pittsford Station and energized the North Rutland Substation from the East Pittsford generators.



Generators at East Pittsford Station.



North Rutland Substation.

With the expertise of "Bush" Howland as our switchman at North Rutland Substation, we successfully energized the transmission line into the gas turbine plant. With further help from employee operators in substations, we had disconnected all customer use so that there was a direct line from East Pittsford into the gas turbine plant.

Once the power was into the gas turbine plant the operators and the rest of the crew cranked one of the three gas turbines up to speed and fired it off. In a few minutes it was on line at 60 cycles and proper voltage, waiting for orders from dispatch to add load. Now we had the one gas turbine and East Pittsford tied into our small power system.

Of course it still didn't serve any customers as we had opened all the substation switches. The dispatcher then started restoring electric service one circuit at a time. We would add a circuit and check with the gas turbine operator to determine how it was going and then add another circuit. Glen Station now had its two units on line and our little electrical system increased its capability. If my memory is correct, we closed the first circuit to the city at 6:20 pm at the Lalor Avenue substation. It was a slow process, as adding customers had to be coordinated with increasing the generation to supply them. It was a procedure that I had thought about but had never had to implement. The situation was one that the city had experienced before when most of the city had been without electricity during the flood of 1947.

The dispatcher had restored service to perhaps one half of the city when VELCO called at 7:10 pm and said that the transmission line from Plattsburgh, New York was energized into the Essex Junction Substation and that they would be restoring service to the bulk power supply shortly. Within a few minutes the VELCO transmission lines came alive into Rutland and service was restored to all of our customers. It was a warm feeling to know our customers were back in service. Some areas, outside of Vermont, were not so lucky.

Two areas of CVPS, St. Albans with hydro generation, and St Johnsbury that was connected to Comerford hydro station of New England Electric Power, did not experience an interruption.

After electricity was restored I spent several hours trying to piece together what had happened on the CVPS system, as I knew there would be many questions.

The next day the Federal Power Commission sent a request for representatives of Vermont and other New England utilities to come

to Washington DC as they would be holding hearings to find out what had caused the massive failure. Wayne Edson, Vice President of Operations, and Porter Noble, company attorney, and I flew to Washington to be present. We chartered a plane from Rutland to Albany and took the shuttle from Albany to Washington. My plane ticket for the shuttle was \$18.00.

At the hearing it was evident within the first five minutes that CVPS was not involved. Testimony from major utility companies quickly determined that the frequency was different between New York and Canada, and that was where the investigation would be focused. We left the hearing and returned home that afternoon.

Later it was determined that the failure had been caused by a relay failure at the Sir Adam Beck station in Canada. A relay failed, interrupting the large power flow coming into New York from Canada. As the utilities in United States did not have the capacity to replace it, the frequency kept getting slower and slower until station operators opened switches to de-energize the total system to prevent further damage to the equipment or to isolate their area from the rest of the failing systems.

The largest unit in service at the time was big Alice, a 1,0000 MW unit owned by Consolidated Edison of New York. As an example of how unprepared utilities were, this steam driven turbine generator unit experienced bearing failure because it did not have a steam driven auxiliary emergency oil lube pump to supply bearing oil while the unit was coasting to a stop following the power failure.

Subsequent to this event major modifications were made to all electric power systems in the Northeast. Low frequency relays were installed to automatically shed load at a predetermined level. Emergency power sources were installed and reliable communication systems were installed. Emphasis was placed on forming the New England Power Pool.

In 1970 the New England Power Pool (NEPOOL) agreement was placed in service and in 1971 its operation function New England Power Exchange (NEPEX), became responsible for all bulk transmission operations in New England and the entity responsible for coordinating all operations with neighboring systems of New York and Canada.

This story is how I remember the event as it occurred over forty years ago.